

DATA ENTRY SYSTEMS

CROSS REFERENCE TO RELATED APPLICATIONS

This application is a continuation of U.S. patent application Ser. No. 11/515,152, filed on Aug. 31, 2006, now U.S. Pat. No. 7,505,785, which is a continuation of U.S. patent application Ser. No. 10/869,215, filed on Jun. 15, 2004 (now U.S. Pat. No. 7,139,591), which is a continuation of U.S. patent application Ser. No. 09/548,565, filed on Apr. 13, 2000 (now abandoned), which is a continuation of U.S. patent application Ser. No. 08/619,682, filed on May 23, 1996 (now U.S. Pat. No. 6,058,304), filed as a 371 national stage application of international application No. PCT/GB94/02101, filed on Sep. 27, 1994, which claims priority to GB 9321133.2, filed on Oct. 13, 1993, each of which is hereby incorporated by reference in their entirety.

This invention relates to data entry systems, to applications of such data entry systems and to equipment for use therewith.

UK patent GB-B-2,202,664 describes an example of an application for a data entry system for the automated ordering of merchandisable items. Merchandisable items are represented in a printed catalogue or other form of list and are associated with bar codes. A merchandise ordering unit comprises a bar code reader with a telephone transmission capability for use in selecting one or more items from the catalogue and transmitting electronically an order for the merchandise to a processing centre over the public telephone network. The orders for the merchandisable items received in this way are processed in the processing centre. As described, the hand held data entry terminal comprises a calculator-like processing unit with a pen-like bar code reader wand electrically connected to the processing unit via a flexible cable. The processing unit includes a display for displaying information and a telephone transmission capability for transmitting captured data via the telephone network. Although this system works well, it is rather bulky and can be somewhat inconvenient in use as it requires two handed operation, one hand for the processing unit and one hand for the wand. Alternatively, if the processing unit is not carried all the time, it needs to be located in a position where the display on the processing unit can be seen and the keys on the processing unit can be operated. It will be appreciated that particularly where the processing unit is being carried in the hand, operation of the keys on it while holding the wand requires considerable dexterity.

European patent application EP-A-0,094,571 describes a self-contained portable data entry terminal positioned within a portable wand-type enclosure. The wand contains a bar code optical reader, signal conditioning electronics, a microprocessor, a memory and a rechargeable battery. The optical reader is operable as a transmitter/receiver so that readout of data stored in the memory is possible. An example of the use of the portable data terminal is described in which captured bar code data can be output from the memory via the optical reader to an optical receiver and from there via an audio coupler to a telephone line for transmission to a remote station. Another example is described where the bar code data relates to items on a menu in a restaurant. Captured menu selections can be output from the memory via the optical reader to an optical receiver and from there via a computer to a printer in a kitchen. Also described is the programming of the portable data entry terminal using an optical transmitter to input data via the optical reader. The wand includes a beeper for indicating the correct reading of a bar code and the current memory loading. The wand described in EP-A-0,094,571 is

relatively simple in construction, and although it is readily portable, it does not provide any confirmation of what has been read.

A further portable data entry terminal manufactured by Telxon Corporation is described in an article entitled "Telxon Corporation, Portable Data Collection and Entry Systems" published by McGraw-Hill in 1989 and referenced "R51-832-101 SKU/UPC Marking and Reading Equipment". The article describes various models of data entry terminals similar to that described in UK patent GB-8-2,202,664. Data from the terminals can be transmitted to a remote station via various telecommunication options including direct connect modems and acoustic couplers. The data entry terminals have a generally rectangular format, similar to a large scientific calculator with a rectangular display and an array of keys. For most models, a separate bar code reader wand is provided which is connected to the data entry terminal via a flexible cable, requiring a two-handed operation as described above. One model PTC-620 has the same basic format as the other terminals, but is described as being for simple applications and features a snap-on reversible head for one-handed operation with either the left or the right hand. However, this terminal is still relatively bulky and cumbersome and in use it is easy inadvertently to operate one or more keys in the array of keys.

An object of the present invention is to provide a data entry system which mitigates the problems of the prior art.

In accordance with an aspect of the invention, there is provided a data entry system comprising a hand held data entry unit, the hand held unit comprising a reading sensor for sensing commands and/or data and for producing input signals in response to the sensed commands and/or data, rewritable storage for information relating to selectable items, a controller connected to receive and process the input signals from the sensor for responding to the commands to control the hand held unit and/or to the data to select the item and a display screen for displaying a user readable representation of the commands and/or stored information for the selected item, and a telecommunications interface for telephonic transmission of information relating to a selected item or items from the storage to a remote processing centre and for telephonic transmission of information relating to selectable items from the remote processing centre to the storage.

The provision of a hand held unit having an integral sensor, control, storage, display means with a telecommunications interface enables the unit to be used in a particularly efficient and self-contained manner for the capture, processing, storage, display and transmission of data. The inclusion of the display in the hand held unit enables the user to verify the data being captured without taking his or her eyes off the areas in which data capture is taking place.

Preferably, the telecommunications interface is integral to the hand held unit. The provision of a telecommunications interface in the hand held unit enables captured data to be used for direct telephonic transmission of the captured data via a telephone network to a remote processing centre. It also allows for data and/or commands to be received from the remote data processing centre.

Preferably, the hand held unit includes a rechargeable power source. There can be provided a base unit separate from the hand held unit, wherein the base unit includes a charger unit and the base unit and the hand held unit are provided with respective interconnectable electrical connectors for recharging the rechargeable power source.

In some embodiments of the invention, the data entry system can comprise a base unit separate from the hand held unit, wherein the base unit and the hand held unit are provided with